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# STATEMENT OF EVIDENCE

BEFORE THE

COMMITTEE OF THE LEGISLATURE,

AT THE SESSION OF 1839,

ON THE

PETITION OF THE CITY OF BOSTON,

FOR THE INTRODUCTION OF

## PURE SOFT WATER.

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JOHN H. EASTBURN, CITY PRINTER,

No. 18 State Street.

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Q. M. S. May 24, 87.

# EVIDENCE

PRODUCED BY SUNDRY REMONSTRANTS.

February 27, 1839.

THOMAS P. CUSHING. *Question.* Please state your place of residence in the City, the quality and quantity of the water you use, and any other information relating thereto.

*Answer.* I live near the State House, had a well deep and inconvenient ; have a filtering apparatus, and drink only *rain* water ; the machinery might cost \$50.

Back roof of house, 25 ft. by 23 ft. }  
Wood House, 30 ft. by 8 ft. } 815 square feet,  
gives me 5605 galls. If 36 inches fall annually, it will give 16,814 galls. or 46 galls. for each day.

The front roof included, at 30 inches, would give 24,325 galls.

The front roof included, at 36 inches, would give 29,190 galls., or nearly 80 gallons per day.

The smallest quantity of rain, for any one year, was in 1837, - - - - - 29.98 inches

The largest quantity in 1831, - - - 60.87 "

Mean of last 21 years, - - - 39.52 "

My family consists of nine persons, the water is pure in winter, has taste of soot, but we are used to it, and do not dislike it. I know of no necessity for an act for the introduction of water into the neighborhood—should not want pond water as long as I can get rain water ; when filtered it has no color ; never suffered in my health ; the neighbors use my well, the water has 5 grains of lime in 5,000.

*Cross Examined.* There was a well in the house when I bought it ; did not use the well water, because I thought



the pure rain water was better ; had a preconceived opinion that it was better, the best in the world.

The capacity of my cistern is 5 feet diameter and 12 or 13 deep, at the lower part a reservoir. Cost was to be as mechanics said, first 60a70 dollars, afterwards thought it might cost 150 dollars ; thought it would last 100 years without cleaning ; has been in use  $2\frac{1}{2}$  years, it is made of brick and Roman cement, at \$7 a cask ; frequently runs over, I do not know how much, probably two or three times as much as the family use ; should prefer this to any pond water ; once lived in Bulfinch street, water very fine, very much admired ; I think it better than where I am now. My well not used by the neighbors ; became dry when Mr. Greene's estate was dug away, deepened it about 8 feet, now 85 to 87 feet deep ; expenses of deepening well in 1836 not far from \$300 ; should now fill it up if dry again. Have a cistern in the garret. Was absent two months, and yet there was no impurity in the water.

*Thursday, February 28.*

DR. GILES LODGE. I have a table prepared by me of bills of mortality ; it may have some errors not affecting materially the result, one for 1828 and one for 1832. They are taken from Dr. Emerson, who states the population in the American Medical Journal. If white population alone, the proportion of deaths would be in Philadelphia, 1a40.

1830	113,942	ratio 1a46
1835	201,000	" 1a37
1836	61,697	" 1a58
1837	79,464	" 1a47
	80,335	" 1a46

*Cross Examined.* My own calculation is from authorities of Philadelphia population in the North American Journal of Medical Science.

*Re-examined.* Paris is well supplied with water by river.

*Cross examined.* Never saw but one well in Paris. I do not know as to Rome.

The Faculty suppose water affects the health ; many things

are supposed, though not proved ; there are no well grounded facts to conclude from. I do not know as to the well water of Boston, whether it has any effect on the health of the inhabitants. I am a son of one of the remonstrants.

[Dr. L. afterwards handed in a detailed table of mortality containing comparative views of different places.]

THOMAS HUDSON. I live in Charter street, have a well, it gives satisfaction to all. There are wells in the vicinity and good ; should not be willing to pay for water. I lived in Cross street 30 years ago, had aqueduct and well.

*To question by Committee.* I could not have done without aqueduct or rain water.

EBENEZER CHADWICK. I live in Mount Vernon street, have a good well and cistern, drink rain and well water. I should not want to pay for aqueduct ; built a cistern as I feared my well might be affected ; my well is 24 feet deep, well in State House yard is 80 feet, my cistern is 9 feet in diameter and 9 feet deep, contains 35 hogsheads ; first had water from Dearborn's machine, soon after rain came and I bought no more.

I before lived in Hancock street, good supply, do not know that I should not want a larger cistern. I am acquainted with Jones's estate in Somerset place, they had to deepen the well there, had good water.

*Cross examined.* Should be content with well water except for washing, drink the rain water myself. Cost of well do not know. Cistern cost from 250 to 300 dollars, very expensively built, I was charged eight casks of Roman cement at \$7.

JAMES CLARK. I live in Hanover street, near Hancock School House ; have a good supply of water, quality very good, as good as generally through the City, have a cistern, supplied except in dry time ; occasionally deficient, but might be remedied by sinking wells. I think the neighborhood well supplied with good water. Estates on Mill Pond not well supplied, do not know of any reason why they cannot be by Artesian wells. I lived once in Prince street, the quality of the water is not so good in the house where I



lived ; it was abundant and did not use enough of it to keep it sweet ; this was in 1820 and 1822.

*Cross examined.* I am a Pump Maker ; have fixed wells of various depths, to over 100 feet—there are some sections of the City where the water is not so good. A well 100 feet deep costs say \$250, pumping apparatus \$100 more. I never used rain water for drinking, price of digging and stoning perhaps 2 50 per foot.

*Re-examined.* It is difficult to account why water is bad in some wells ; if water should be introduced, should not at present be willing to pay for it ; if the water is as formerly in Prince street, should.

*Cross examined.* On the Mill Pond, Smith's well is an Artesian, good water ; one well in Friend street, water of very good quality. I do not know if they will wash or not.

SEWALL KENDALL. I live in Friend street, Ward No. 3. Water good, from cistern—supply the neighbors ; lived in Hawkins street ; no water in the well, owing to distil-house wells near, and distil-houses there now—should not be willing to pay water rent, nor to have it come there if for nothing—many very good wells in the neighborhood. T. Gould's well bad, because not properly boxed.

*Cross examined.* For deepening wells I have given \$3 a foot ; am by trade a mason ; deepening is a common operation ; last year lowered three wells about 30 feet, deepened 3 or 4 feet ; in Hamilton place good water, never analyzed any, judge from taste.

ISAAC DUPEE. I live on the right side of Friend street, Ward 3 ; good well, there are 25 persons on the premises ; was formerly a Pump and Block Maker ; water pretty good from Deacon street to Hanover street ; own estates at north end, one in Murray place, Prince street, all good water ; one well in South Russell street, owned by Walter Welsh, constantly overflowed ; should not be willing to pay for water for any of these estates ; presume neighbors have good water. Mr. Kendall and Deacon Sutherland have wells never known to fail ; Gould's not so good ; water on the other side of street good.



ROBERT MARSH. I live in Hanover street, Ward No. 3, well supplied with very good water, have a cistern also.

*Cross Examined.* Our well failed about a year since, dug it about 3 feet deeper, well now about 30 feet deep.

EPHRAIM MARSH. I live in Pleasant street, [old Ward 12] Ward 11, have very good pump water; have rain water and take the aqueduct which is better for washing at this season, on account of coal-dust in rain water. Fayette street supplied by aqueduct; I own real estate in Franklin street and other places, pretty generally supplied with water. If the pond water was preferable to aqueduct, should take it; I have sunk about 55 or 60 Artesian wells, generally favorable, some about 60 feet below low water mark; water generally rises and falls with the tide; commenced about 8 years since; soft water from South Cove, analyzed by Mr. Hayes.

*Cross Examined.* Cost of Artesian wells from \$400 to \$1,000; South Cove Company paid \$1,600. We went down about 250 feet, the water rises within 14 feet of surface, generally rises and falls with tide; quality of water different in Artesian wells; on Mill Pond, north side, very difficult to get good water; on Cooper street dug down 72 feet, drilled about 8 feet farther, expenses over \$800, lost \$200 by it, water did not rise as usual, not more than 18 to 20 or 30 feet; might be pumped dry; on Commercial street a good supply of water; they often lock up the pumps; on Fulton street Adams & Hammond sell a large quantity; there is a good deal of water carried from the New England House; have two Artesian wells there which cost over \$400 each; water at rail road depot, not so good as some.

In Canton street thought to be good water, I call it good water; any in the City of that quality I call good; one well sunk just above Land Agent's Office, thought to be very extraordinary good water; never attempted Artesian wells in high parts of City, generally in low places; attempted a well in Tremont place, but met with stone about 15 feet deep; meet with stones, but not always, go through hard pan and then quicksand. I have lived in Pleasant street

54 years ; at the corner of Water and Congress streets, on Dalton's estate, there is good water ; rise of that spring was above the bottom of the cellar, constant stream, do not know how large, hardly so much as a pump ; the water in Franklin street I call good, it will not wash.

EZRA TRULL. I live in Alden lane, Ward 4. Water at house very good ; first had suction, it was left with dirt, &c. Dexter dug it out, it cost \$60 ; I have a cistern, I own a house in Hawkins street, the well was dry and I deepened it, have one large well, bricked, &c., and three iron ones ; the house where I live has a cistern and is scarcely ever out ; supply City dinners with water ; sell warm water to masons ; have cistern water also at distil house ; dug distillery well 25 feet, through putty mud, to clay and red cedar, trunks sound, but small stubs or limbs crumbled ; it was marsh where the red cedar lay ; well over 25 feet, but crushed in, and reduced it to  $6\frac{1}{2}$  feet, it is of brick, 65 feet deep.

*Cross Examined.* I sell perhaps 400 hogsheads of water a year, at 1s a hogshead ; Dearborn has bought considerable ; should not take water from the City unless short, iron wells cost not far from \$300, I do not know the cost of stone, a well over 70 feet costs more than one smaller of the same depth ; cost I should think more than \$1,000, cistern at distil house cost \$300, cistern at private house cost over \$50 ; some hold ten and some 15 hogsheads ; did not contract, oversee it myself, poor families take rain water, and I give away hard water ; do not know how many families are supplied, charge 25cents a hogshead for soft water ; Dearborn takes it in his machine.

SAMUEL MAY. I live in Atkinson street, Ward No. 8, have aqueduct for washing, well water as good as ever was. There was an examination of wells by Mr. Lester, he said I suppose I must report it as the rest, bad ; asked him to go in and taste, he declined. I own houses in different parts of the City, and have the care of three houses in High street ; one well for all, supplied by suction. The father of Mrs. Scudder thought it would wash, I thought not, think



it would not. The well at Tileston's wharf contains excellent water and the quantity is inexhaustible, never knew it to fail. There is also a well at the head of Russia wharf, Mr. Inches set his men to pump it out, two men could not do it. Water good all round Fort Hill and there is a good supply; have aqueduct in High street, should not take water from the City if brought in at water rent; say the same of all my estates. Country friends say my water is good, make exception of mine over other Boston water.

*Cross Examined.* Do not use aqueduct for drinking; one tenant has it; never interruptions of aqueduct, if deprived of it should take from the City.

BENJAMIN RUSSELL. I live in Lincoln street, am three fourths of a century old; have water abundant from aqueduct and well; think I could do without aqueduct; born in Court street, lived on bread and water before the Revolution.

Have lived in Nassau street, cannot remember how many parts of the City I have lived in; never found any difficulty about water; never drink anything else with dinner; should not take City water, to pay for it. In Pinckney street, Dr. Warren said the water was more nourishing than Madeira Wine.

*Cross Examined.* The water generally in Boston is what I call good. The sources are Fort Hill, Beacon Hill and Copp's Hill. In Pearl street, water washed, as I was told, for a number of years, but afterwards they complained of it as being hard or taking more soap.

EZRA DYER. I live at the corner of Chambers street, Ward 5. Water for well and cistern good and abundant, well only  $5\frac{1}{2}$  feet deep, I think; got three men but could not clear it; three houses in connection with mine, never short of water in Eaton street; if water was brought into the City should not be willing to take it at a rent; cistern holds about 30 hogsheads.

*Cross Examined.* I do not drink rain water, there is no other water like mine, an uncommon spring, people rather give mine the preference over some others.

JOHN GREEN. I live on Washington street, Ward 11 ; supplied for four years past by aqueduct, have a pump on Lucas place ; a well on Deacon May's estate supplies 40 people, beautiful water, used for washing. Well on my premises Artesian, abundance of water, but it became impure by not using it after we took the aqueduct ; bored 110 feet, 5 feet above flats it boiled over ; there is an Artesian well on Front street, by J. D. Williams ; went with engine, worked by a stop watch, took two minutes to play it out ; the well would supply 100,000 gallons in 24 hours. May's water is a little extra ; I think proper wells sunk on the Neck would supply the City.

*Cross Examined.* Would supply, as I judged, by engine playing ; she will hold 30 gallons or more ; would supply as above with proper apparatus ; did not exhaust it, put down hose and exhausted it in 2 minutes ; it rose up again in 4 minutes, quality of water fair but not so good as May's. Aqueduct never stops only half hour at a time.

*Friday, March 1st, 1839, 3 P. M.*

NATHANIEL HAMMOND. I live in Ward 5, bought in 1820, abundantly supplied with good water ; my tea kettles were never furred ; have rain water for washing ; own estates in Leverett street, and have care of others in Cambridge street and Pemberton square ; have 3 houses ; that nearest to Somerset street had well 98 feet before striking water, in 24 hours water made 48 feet, secured well with curbs till 1837, began with horse power to reduce the quantity ; reduced it to 20 feet and could do no more, leaving 25 feet in the well ; reduced it again and stoned it, water rose to 35 feet, filled in well with paving stones about 9 feet, put in pump, while masons were using water it was good, when not so it grew stagnant ; well is about 30 feet from houses and 55 feet from other wells ; about 23 feet from surface met a spring very fine and abundant. Another well to first estate 95 feet deep ; did not find water ; dug 14 feet and struck a powerful spring, on the avenue leading from Pemberton square to Somerset street, water pure soft and good ; at the mid-



dle house water good ; none of the water has proved bad except one (above first mentioned) had clay which I am told contains sulphur. In Leverett street there is some variation in the depths of wells, have several in that neighborhood, average about 25 feet deep ; think there is a ledge under the City, some have to drill through it ; should not for any estates I now own be willing to pay for water ; should have been glad to have had it if I had foreseen the difficulties ; do not recollect of any complaint in houses I have as to quality of water ; I found enough to supply a large proportion of the neighborhood ; after laborers struck the spring, heard a singing noise as they called it ; I think Artesian wells might be used advantageously.

In Pemberton square (next to B. Adams's) dug 95 feet, then bored 14 feet ; a moderate spring ; came to a rock but could not get through it and stopped ; good water and enough for one family. Erected a block of buildings for Merchants' Insurance Company, corner of Water and Congress streets ; struck a very powerful spring, could not confine it till they got a mechanic to make iron pipes of a particular construction ; would be enough to supply a very large number of inhabitants ; very good water indeed. During the past year sunk an Artesian well for Mr. Hubbard on Washington street ; (second from Washington bank) think we dug 83 feet ; water rose within 14 or 15 feet of the surface ; very soft water, used it with soap ; would make a fine lather, equal to any rain water ; cost I think, about \$600 by the contract. Earth there very different from any I ever met with ; stratum of clay began about 9 feet from surface. In Cambridge street my estate had an excellent well, about 30 years ago of good quality ; its character changed and the water was not used for family purposes. I rebuilt on it in 1831, 2 or 3, and dug a well on another part of my estate, 14 or 15 feet, then clay, then dug 14 or 15 feet and came to good water. The City sunk a well at the junction of Spring and Leverett streets, met a spring, not over 16 feet.

*Cross examined* Water in J. P. Thorndike's house very excellent, taken from spring by suction from the front of the

houses ; do not know as to quantity ; Boston and Worcester Rail Road Artesian well does not compare with Mr. Thorn-dike's. The aqueduct does not go to any of my estates ; well at Rail Road cost over \$2000 I believe, think it is 240 feet deep. They have used chalk to get out gas and think it better ; talked of having the aqueduct ; do not have it because it is expensive to take it over ; was referred to the Committee of the Board, but do not know what was done ; understood they had not sufficiency to spare it ; do not recollect hearing they gave us notice to stop. Cost of wells in Pemberton square, 2 cost not far from \$600 each, or something over. On Cambridge street not over 50 to 75 dollars each, including pump. On Leverett street cost about 50 to 75 dollars each ; some wells fail on Somerset street, Mr. Hammond's ; W. W. Stone's failed about a year ago in Bowdoin street, think they were about 35 feet deep ; also Dr. Cutler's estate on Tremont street failed a year ago last December ; they sunk  $2\frac{1}{2}$  feet and found water sufficient. At the Parsonage House it failed also, repaired by sinking wells deeper. Col. Pickman's well, Mt. Vernon place, failed about 1834 ; dug another well 83 feet deep and struck a powerful spring ; do not know if the deepening draws from other wells or not ; do not know of any better wells than those I have spoken of ; it is more like country water, the one of 98 feet and Mr. Hubbard's.

One there comes to my mind, S. Hammond's in Conduit alley, Artesian, sunk in passage way, think 150 feet deep ; Hammond fixed a pump to the well, but in a year afterwards there was such a difficulty about calling for the water that he took up the pump and put leaden pipes to his houses, &c. The water was used for washing.

SIMON WILKINSON. I live in Charter street, Ward 1, have abundance of water both rain and pump, very excellent ; own another estate in Unity street, well there would supply 100 families, does not wash, it is like other water in the City ; hear no complaint from the Revere estate ; on Swift's estate water enough, Darracott's the same. In my own where I live, I deepened it 45 feet, should not be wil-



ling to pay a cent if the City brings it in ; might take it gratis ; no trouble in getting water if they put down cisterns, do not know of any exigency in that part of the City. In Bennet street is a spring that could not be cleared of water. There is a well near the Methodist meeting house which has been celebrated for forty years, some years ago worked it, could not clear it. Water in Mr. Lucas's well abundant and good. Asked Dr. Ware once, why he signed that the water was not good. His reply was, it was a matter he never had taken particular interest in, and he signed it on the paper being presented to him ; I asked him how Boston could be so healthy, if the water was so impure. He said it was a healthy place, and that all water when closely analysed would have a sediment, and still the water might be healthy.

*Cross examined.* Cost of deepening 45 feet, was I believe, about \$225 ; gave him (Fitch) \$3 a foot ; think it would cost more to deepen than to dig anew ; 50 to 100 people are supplied from my well in summer ; pump going all day, pretty steady when dry weather. In Unity street also a great many people supplied. Hutchinson's well also used, but not so good as some others.

*Re-examined.* Something like 7 wells in the neighborhood, but pumps not in order ; abundance of water, no doubt as good as mine, some pumps have been out of order for, perhaps, 15 years.

In Hanover street, Mrs. Porter's well is good, supplies a great many people, do not know how many ; its reputation great.

J. GREEN *called.* Eleven specimens of water produced, viz :

No. 1. Canton street, Artesian well, 75 to 105 families supplied daily.

No. 2. City well, Artesian, by Mr. Williams's, 100,000 gallons a day.

No. 3. J. French's well, 637 Washington street, never failed.

No. 4. Hinkley's well, Front street, Artesian, abundance.

No. 5. Hinkley's well, Front street, old shop, excellent and abundant.

No. 6. Brewhouse, Castle street, Artesian, 90 feet deep, used 100 barrels a day, were 6 or 8 hours pumping.

No. 7. Oil Factory, near Mall, on the neck, Artesian, 85 feet deep, good and large supply. (Simmons & Thorn-dike.)

No. 8. May's, pump in street, opposite Lucas place, supplies as many as 40 families.

No. 9. Oak place, do not know if Artesian, abundant, as Mr. Bullard told me ; it washes.

MR. MARSH *called again.*

No. 10. Granite wharf, Artesian well, great abundance.

No. 11. North Market street, believe there is a sufficiency ; clerk of market occasionally locks it up.

S. WILKINSON *called again.* I know Granite wharf ; great supply of water, frequently fill casks for ships ; pump going from morning till night, situated about centre of arch, think about 600 feet from upland.

J. GREEN *called again.* I was requested to go to pump with engines ; worked 2 minutes to get down to make it suck ; went down 17 feet, pipe 12 inch bore, it takes 4 minutes to fill up again, by stop watch. I calculated 30 gallons a minute that we pumped out ; there had not any come in ; first part fills up almost immediately, last part not so rapidly.

OTIS MUNROE. I live in Hanover, near Charter street, well 17 feet deep, dry for a short time, twice in 10 years, one was last year ; the supply in neighborhood good ; plenty so far as I know ; soft water ample from rain, thought I should deepen my well ; from there down to the ferry ; same kind of land. A well on the Abrahams estate goes with a crotch and sweep, great many go to get water there. In neighborhood of 18 Commercial street in the rear, the well is about 110a115 feet deep ; if used a good deal, say 5 hogsheads a day, good ; when first pumped has a smell, but that soon evaporates, used for washing. Whitney built it at a great expense, think \$2,400a2,500. In Fulton street



stable there is an Artesian well over 100 feet deep; the water is good and washes.

J. GREEN, *recalled*. I made experiments at different times; I have played there from half to one hour; flowed in constant streams; never pumped more at once than as above.

*Tuesday, March 5, 1839.*

WILLIAM GRIDLEY. I live in South street, Ward 9; have had well and cistern for about 11 years, have never been out of water; well water very good and pure, once took aqueduct, cut it off because I had a sufficiency without it; have charge of father's estate in Chambers street, West Boston; well never failed for about 40 years; father and mother lived there about 40 years, always used the water and as healthy as any people. On the estate on Governor alley corner, water is good; within a year past, the well was deepened and now sufficient; do not know, but believe water good, have owned it about 12 years; in Hayward place had good water and enough; lived there 3 years; my place of business is in Brattle street, use the pump there in street; supply rather limited, all the neighborhood go there; if water was brought in by city should not want to take it. I wish to sell my father's estate; do not know of any necessity of water in that neighborhood, the pump gets out of order in Brattle street.

*Cross examined.* Aqueduct connected with the house when I bought it, one or two years ago; rain water sometimes affected by coal or soot; aqueduct cost 10 or 12 dollars a year; deepened well in Governor alley  $1\frac{1}{2}$  feet, expended perhaps 40 or 50 dollars between the two houses; cistern and apparatus about \$100; well 36 feet deep, do not know cost; pump in Brattle street in warm weather constantly going; frequently stopped it, so as to let it fill up; do not recollect that the aqueduct ever stopped, cistern of brick in Roman cement, told the mason to build it as good as he could.

BENJAMIN ADAMS. I live in Pemberton square, Ward

No. 4 ; my well is very shoal, about 20 feet ; found cistern there, supply not large, but have had enough ; have not lived there long, lived in Mt. Vernon street, opposite Hancock ; we had water enough, but my neighbor, whose pump was in the same well thought it not good ; we always found enough and good ; rain water sometimes out ; lived at the corner of Chestnut and Walnut street, also next to Judge Shaw's ; yard went through to Pinckney street, water abundant and good, had rain water cistern also ; in Chestnut street no recollection of not having enough ; have owned in Derne street since 1835, 3 houses, but one well there for all the houses and one shop (4) ; they applied to me to dig another well ; I own no other houses except in South Boston ; in every part I have good water and plenty ; go from 15 or 17 to 35 feet deep, but on high land it is difficult to get water, as at House of Industry. If the City should introduce water I would take it ; should want it for washing ; my cistern requires to be cleansed, think I could build a well like mine for \$35, should be willing to pay \$25 for city water ; I do not think there is any necessity for City's bringing water in, should like to have a corporation do it.

*Cross examined.* I would not pay for tenants taking water, but would for my family ; should prefer drinking the water I have to the aqueduct.

J. P. CUSHING, *recalled to explain.* Cost of cistern as before, that is, the filtering cistern, exclusive of other cistern, which is 8 feet in diameter and 6 deep ; in cellar store, Brattle street, well good but not a great supply.

*Cross examined.* Built my filtering cistern in 1836.

B. ADAMS, *recalled.* Our water washed, asked woman how she liked rain water, said it washed very well, afterwards said rain water washed better ; (produces samples water, viz.)

No. 1. House on Pemberton square.

2. Derne street.

3. M. S. Lincoln's ; have heard it was enough to supply Broad street.



No. 4. North Centre street, near Mill Creek.

5. Dr. Bigelow's ; I think it the least good.

6. No. 97 Ann street, well about 35 feet deep.

7. Old South.

I do not give any opinion as to qualities, only by taste, and by its washing ; rain water not so good as it was ; have not used it much lately ; wells in rear are very deep ; in front not deep, 15 or 17 feet ; my new house, well and cistern were built in 1836-7.

ELIPHALET WILLIAMS. I live in Pearl street, Ward 8, well 96 feet deep ; water very good, as good as any body's, and as much as we want ; have aqueduct and cistern ; 12 or 13 years ago built cistern ; have the aqueduct very freely ; never heard any complaint of want in estates on Pearl street ; built my houses in 1801 ; first dug a well 24 feet ; water good ; about one month after the well gave up, tasted of marsh mud ; then dug a new well, about 40 feet from the other. I would not take the trouble to bring the City water into my family ; it consists of four persons ; think it would be one of the most unfortunate things for the City to bring it in. Some years ago in the City Government it was talked of and estimates made ; tax-payers would not agree to it ; I know of no exigency requiring it ; think it an unnecessary expense ; we are well supplied as to water for fires ; better than before we sunk wells.

*Cross examined.* Should not take the water gratis, because I am well supplied, and have used my water for 30 or 40 years. I use aqueduct in part for culinary purposes and tea, not for coffee ; prefer well water for drinking ; people occasionally supplied from my well, not often ; water comes up within 14 or 15 feet.

*Re-examined.* Have been in City Government since 1822 ; never heard any quack or regular physician say, your child is sick by the water. My opinion is that a supply of water would be a luxury, but it would be too great an expense at this time.

SIMON G. SHIPLEY. I live in Hanover street, No. 94, Ward 3, have lived there about 4 months ; my place of busi-

ness is 5 or 6 rods from where I now live ; have a well on my premises ; distil house took 70 hogsheads a day and did not lower it ; plenty and good ; have cistern water also ; in some few cases we got out of rain water, and went to North Centre street for it ; should not take it if brought into the City to pay for it ; own a house in Stillman street ; have a cistern and well ; well not now sufficient ; 6 suction have been added and not enough ; some few families not digging wells have none, and come to mine for water ; about 8 suction not enough ; the land is not made ; house on the main ridge of land ; use that water for baking ; 12 or 20 in family, all healthy.

*Cross examined.* My water is good and fermentation with it perfectly free, and this is a good test of water ; purest water best for fermenting, not the softest ; distilled water will not answer ; think there is no exigency now for introducing water into the City. Cost of my cistern not much over \$100 ; it was included in other jobs ; if separate, it might cost think \$150.

JESSE SHAW. I live in Chestnut street, am well supplied with water, supply my neighbors, have a cistern, think some people want water, and some want bread ; should not take water at present if brought into the City, water is never more than 4 or 5 feet deep in my well, in depths of wells the average is from 20 to 40 feet. In Pinckney street, water runs through clay, apt to be stagnant. I built at the corner of Water street, water rises high, got 2 pumps to free it, it would supply for half a mile all around, I should think ; the water was excellent, do not know how it is now.

*Cross examined.* Built in the year of the fire in New York ; built house in Bowdoin street ; good supply of water, and in Temple street ; passes through stratum of clay ; do not know as to water in Bowdoin street now ; the aqueduct goes through Charles street.

*Re-examined.* Do not know of any wells on the west side of Charles street, except Brown & Alkers ; never built there ; bad water, sometimes becomes stagnant.

*Cross examined.* Know of one bad well ; dug it my-



self and then filled it up ; my present well is not more than 15 feet deep, first went down into marsh mud ; cost of first well perhaps 75 to 100 dollars ; well water not so good for washing ; rain water when low becomes impure ; but not troubled as to washing.

DANIEL BALLARD. I live at the bottom of Clark street ; am satisfied with my supply of water ; have cistern and well ; well water very good, neighbors take it ; should not take water of the City ; do not know any public exigency that requires water being brought in ; would cost the City an enormous expense ; I am a shipwright ; health pretty good.

*Cross examined.* Never sick but once in my life ; have lived there about 30 years ; no objection to having water brought into the City, if they will not tax me for it.

*Re-examined.* Own stores but not houses ; water may be had in neighborhood at 20 feet deep ; dug mine 21 feet and could not clear it ; Irish people go to Granite wharf, in great numbers ; soft and beautiful water to boil peas, &c. in ; at present should not give any thing for water. General health of neighborhood, counted to be as good as any part of the City.

THOMAS GOULD. I live in Friend street, Ward 3 ; last summer dug a well 30 feet deep, and bored about 20 feet more, excellent spring, through made land ; had to box down, in a veiny clay ; lower curb tight with inner one and boxed ; man slighted it ; leaks through the curb and calculate to remedy it ; well in adjoining yard is tolerable ; not so good as some on my other estates ; wells good. In Brighton street, Ward 5, dug about 25 feet, put in clay and bored as much more ; had abundance and good water.

In Spring street, not quite so fortunate ; water a little salt ; had to deepen and box ; have had a constant supply ever since ; it was a little deeper than the other ; have dug a number of others since ; never would have a house without a good well ; thought it not worth while to dig on Mill pond, because it would cost more than it would come to ; dug 24 feet but found no water ; the men gave it up, I told

them to go on, and in 2 or 3 feet got water; sold a right to take water by suction for a stable, also to Mr. ———; neighbors use it; have sounded it in dry times, and never found less than 13 feet; on the other side street, opposite Baldwin place, north side, dug about 6 or 8 years ago.

Well in North Margin street appeared to be good; but not used, became stagnant; bought estate of Capt. B. Smith; City cut off the land and brought the well into the street. I dug another on Cooper street, 40 to 41 feet deep; good spring and abundant; supplied 3 houses, and people coming and going all the time. In Friend street have an excellent well, owned by 3 of us; great quantity; quite a number use from it; do not know any estate I should be willing to take for it, except where I was unfortunate in boxing. I cannot say I know of any exigency requiring the introduction of water by City; sometimes drink rain water, not so soft as in wooden cistern; wells in northern part of the City generally very good; abundance of springs round Copp's hill; sometimes go pretty deep, near 100 feet.

*Cross examined.* Great deal of complaint on mill pond territory for want of water; on south side of it some bored wells; had good water on the southerly side of creek; do not know of any water being sold there.

Suction right to Buttrick & Patch sold for \$100 for stable, &c. To Mr. Patch, subject to Deacon Pond's right, for \$50.

Cost of well in Brighton street,	\$60a70
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Cost of well 2 estates (Hawks,) in Spring street,	120
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Cost of well south side Baldwin place, not much rising 50 and pipes down to North Margin street, short of	200
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In Friend street cost about 120; lived in west part of the City, on Brighton street estate; my master dug a well short of 15 feet; people that came to my well, came because they had no water; poor people, and houses owned by rich men, who do not put in wells; general character of water in west part of the City is good. In Poplar street there is a ledge of slate; does not extend through Brighton street; near the bridge found no slate rock. Dalton's estate on



Congress street, 50 years ago, yielded a large supply of water ; wells in Portland street have a good supply ; Mr. Farnam's estate well supplied there ; Mr. Jones's well about equal to Dalton's.

*Wednesday, March 6.*

JOSIAH KNAPP. I live at south end ; have lived there for 50 years past ; water good now ; had to bore ; struck a very powerful spring ; well 36 feet ; bored 70 feet ; water rose within 10 feet of surface ; never sucked, it gives 30 hogsheads or more daily ; would not wash ; very good water, but not so soft as I now use ; being partly supplied by the upper spring bored about 20 feet ; as much now as then, and ebbed and flowed with tide every day ; one well in the street where I live ; bored 95 feet, unfortunate in boring ; tool broke and there remains ; now supply 6 families ; this is excellent water ; soft, so allowed by people from the country ; not so soft as rain water. One well I sunk in rear of Kneeland street, distance of 60 feet ; but did not box and secure it ; it lets in the upper spring, and is a little brackish.

One on Eliot and Washington streets, dug about 30 feet, came to hard gravel ; bored 120 feet without success ; wells in neighborhood some good and some bad ; saline qualities, affected by salt water ; boxing would not cure them ; there is a well in Harvard street. I shall be 86 years old the 19th of this month ; the water when first tapped was good ; but we often lose it by not securing it against upper springs ; the supply would be sufficient if they would go to the expense of sinking wells ; suppose they would succeed by iron pipes ; aqueduct passes there and not half the people take it ; should not be willing to pay for water if brought into the City ; do not see as water would affect the health of my family ; enjoy good health, and I have lived as long as any body ; several wells in vicinity ; Baxter, Holland, Hinckley, (Iron works) and J. Gibson's.

*Cross examined.* Have supplied 12 families, tenants ; cannot spare it to neighbors ; have not sufficient ; used

aqueduct before I sunk this well ; expense of well I think was nigh on to \$400 ; two or three failures in boring were gravelly ; do not succeed through clay ; do not know how many are without wells, should think not one half ; they are supplied from the aqueduct ; it has been common for one well to supply many families ; west side of Washington street all pretty good wells ; I had a distillery, discontinued 2½ years ago ; the aqueduct was steady, never fails in Front street ; in Washington street it often does.

SAMUEL H. REMICK. I live in Kennard avenue, leading from Poplar to Allen street ; housewright by trade ; I have a well on the premises ; plenty of water for my own use ; probably would afford supply for 20 families ; have cistern for rain water ; have care of houses in Garden street, south side of Cambridge street, and about 80 feet from it there is a well 33 feet deep ; built 10 years since ; have cistern for soft water ; tenants are satisfied ; well always has full supply for two families.

I have care of one house on opposite side of Garden street ; water very good ; well about 20 feet deep ; have built houses in other parts of the City ; have dug wells at the bottom of the Common, opposite burying ground ; good supply to the best of my recollection ; this was some time ago ;—also Lafayette Hotel, opposite Boylston Market ; do not recollect as to the water. I dug one well for U. Cotting in Cornhill, (Market street) forget depth, probably 25 or 30 feet ; plenty of water at that time and called good ; should not be willing to pay water rent ; know of no necessity of introducing water into the City.

*Cross examined.* I do not mean to say there is no want of water ; some neighbors come to my well, and also go to others ; my wells never fail ; on my estates always prefer rain water for washing.

RICHARDS CHILD. I live corner of Hollis and Washington street, Ward No. 10, well supplied by pump and cistern ; always have abundance ; never have failed for 26 years ; well corner of South Bennet and Washington street about same as the other ; have care of two houses in Ham-



ilton street, Fort Hill ; the well to the two is good and sufficient as far as I have heard ; have a partial knowledge of neighborhood ; my impression is they are well and satisfactorily supplied ; do not feel now that I should take water if brought in by the City ; know of no reason why I should ; know of no necessity, unless from people that are not willing to procure water in the same way as others have. I consider it a question of expense.

*Cross examined.* Do not know cost of well ; have repaired but not to deepen ; do not know of any estates in the vicinity without wells ; I believe at south end in neighborhood of J. D. Williams' they are as much without wells as any parts ; I think considerable portion take aqueduct who have wells ; they consider it more pure than cistern water.

EBENEZER SEARS. I live in Rowe place ; am a housewright ; amply supplied with well and aqueduct ; water very good indeed, none better ; have charge of three houses there ; 2 wells 20 feet deep ; soft water from aqueduct ; have one house in Warren street ; sunk a well 24 feet deep 15 years ago ; water very good ; had a cistern for soft water ; one house in Beach street ; had a well 80 feet deep, the water bad ; built on another part of Warren street, north part, water very good and ample supply ; soft water there from cisterns generally ; also Haymarket place, water not so good there ; sufficiency for family purposes ; wells not much over 25 feet, owing to the soil being porous and gravelly ; when much used, very good ; the gas works had affected the water there ; have built Boylston stores ; there was a well for 40 years ; very good water, bad low down, but good from upper stratum and sufficiency ; supply at Chickering's building ; sunk a cistern 5 feet from bottom of cellar ; there was such a quantity we could not go any deeper. In West row, Court street, there is a continual flow of fresh water ; in Front street, 2 wells near Essex street contain good water, 20 feet down, ample supply. At E. D. Clark's building on Rowe street, went to try their water, very good ; my opinion of it is I do not think there

is any necessity of bringing water into the City ; took the aqueduct in preference to cistern, more economical. In H. Codman's house Tremont street, there are 2 wells, with ample supply ; one for stable and one for house ; his estate in Washington street has good water ; Amory Hall has good water and an abundant supply. Dr. Hale's well caved in ; taken up and relaid ; water good, about 20 feet ; on West street ; the water there generally good ; had brick cisterns ; one or two of the houses had the aqueduct ; house adjoining Amory hall has the aqueduct.

*Cross examined.* Take water from upper springs ; some danger of impurities ; I know of vaults breaking through.

ROBERT LASH. I live in Commercial street ; that part of the City is very well watered ; lived there 16 years ; never out of water ; get soft water from cistern ; generally have sufficient ; well is about 40 feet deep, as I have been told ; in about 10 rods round there are 6 or 7 good wells ; the opinion there is that they are well supplied ; do not think there is any exigency for water ; should have no occasion to take it and pay for it ; I before lived in Salutation street ; water there abundant and good ; have never known any want ; I believe that part better supplied than others. From Winnessimet ferry round to Foster street, there are as many wells as is necessary ; there is a well in Foster street, to which a great many people resort. There is a pump on Commercial street also, where people resort. There is a well at Boston Bank, but now covered up.

*Cross examined.* Do not know how many houses are without wells ; my impression is not more than one well to 3 or 4 houses ; I think between Henchman's lane and Foster street, there are 15 wells in 20 rods square.

JOSIAH VOSE. I live at No. 500 Washington street ; have cistern and well water ; plenty and good ; when I went there had the aqueduct ; I cut it off, prefer cistern ; estate corner of Avery and Washington streets ; have well in cellar 10 feet deep ; very good and abundant ; estate in Columbia street, water very good and plenty ; have the aqueduct ; estate in Haymarket place good and abundant,



no complaint; in Suffolk place, where I first lived, there is good water and plenty; in Ash street, dug wells; did not go deep enough; and water not good. On Dr. Bullard's estate, good water; think no exigency exists to bring water into the City; should not take it; my cistern water as pure as rain water, excellent water; but when built upon, hurt it; on Bedford street corner, water good.

*Cross examined.* I use the rain water myself, family do not; I have not used filtering but for a short time; neighbors do not use rain water for drinking; I cut off aqueduct because it is cheaper to have a cistern; 2 cisterns and a pump cost about \$100; brick cisterns lined with Roman cement; well about 30 feet deep; never heard complaint for water.

HORACE DUPEE. I live in Hamilton street, very large supply and good water; the well supplies 3 houses; soft water from cistern; when short we use well water; put soda in it. Estate in Leverett street, near jail, 50 feet off; dug it 31 feet and then filled it with gravel 10 feet; water pretty good for all purposes of washing; have something to do with a well in Well street; it has a good supply for all purposes; 34 houses are supplied; think 3 families each; they take about 500 buckets daily; is kept down, but would rise 60 feet if let stand for a week; well 75 feet deep and stoned up. On Fort hill there are a good many good wells; in Broad street, there are but few wells. The aqueduct goes through Batterymarsh street to Maynard's bake house; it might be extended to Foster's wharf; only 3 or 4 persons take it in Broad street; they go to the wells above mentioned, some to Fort hill and some to the Waltham Company's well; many houses in Broad street have no wells or cisterns; the aqueduct passes their doors, but they will not take it; principally Irish families; do not own their houses; the landlords tell them to get water where they can; water from the above well used for washing; a number of old wells which used to afford good water are now covered up; not taken care of by owners; my well was dug 20 odd years ago. I have lived in Eliot and Pleasant streets; have



good water and abundance ; previously boarded in Orange street, on an estate of Arnold Welles ; the well was covered but I believe had suction from it ; (produced sample) it is inexhaustible ; do not know whose estate it now is ; believe it belongs to Willet & Ballard.

*Cross examined.* The well is kept under lock and key ; the water is sold ; owners of the buildings pay \$6, some more ; give 15 buckets a day for \$6 ; yearly income about \$200 ; City let us have \$25 to start with ; we pay a man \$10 per month to take care of it ; open at 7, 11, and 4 o'clock, 1 hour each ; sometimes it sucks in summer ; if there is a scarcity, do not let any one take it but those who pay ; do not calculate at any time to let others have it—a Committee was appointed by the City to see to this well, viz ; Samuel Bird, J. H. Cheney, and Horace Dupee ; I have been in the office 9 or 10 years. The aqueduct not taken there because they will not pay for it ; the owners of buildings will not take it because the well is cheaper than aqueduct ; only 6 per annum ; some families take 3, some 4 buckets a day ; some, that have cisterns.

DANIEL SHILLABER. I live in Crescent place, Ward 3, am well supplied with water ; I am in the dry goods business ; have a well and cistern, good ; supply 4 families in the court ; water has never failed for ten years ; do not know of complaints for want of water ; people from Mill Pond frequently come for it ; water on estate in Salem street, near Baldwin place, is good ; supplies 4 or 5 families ; they keep soft water in hogsheads. On an estate in Prince street, No. 60, the rain water is plenty ; the well water can't say much of ; 4 years ago had well sunk, and very good water till within about 2 years. Mr. Haskell's well is about 15 feet from mine ; good water as I am informed ; do not know generally if water is wanted ; should not pay for it myself, with the accommodations I now have. On an estate in Pinckney street never dug a well ; get it from neighborhood.

*Cross examined.* There is no aqueduct ; do not know of selling water ; my well in Prince street is not used ; good while used by two families.

*Thursday March 7, 1839.*

REUBEN RICHARDS, JR. I live in Hancock street, Ward 4; own and have charge of real estate in various parts of the City; sufficient supply there; springs and cisterns, corner of Cambridge and Hancock street; brick cistern and 2 wells. I have lived there 17 years; have been out of rain water in dry seasons; never out of well water. I live out of town in summer; if City bring in water should not be willing to be taxed for it; it is not a matter of necessity; good many wells sunk in neighborhood; have estate in Bowdoin street, one house; never heard any complaint as regards the well water; have 4 estates in Myrtle street, but not able to speak of them; have stores in South Market street, water from City pump, at east end of Market House; conceive no necessity of bringing water into the City; most prominent reason is the expense; if taxed high they will drive me away from the City. I might take it if a corporation would bring it in; depth of my well in Hancock street about 26 feet; 3 houses supplied from one well, and 2 from another.

*Cross examined.* My principal objection to bringing water in, is expense; do not know cost of wells; built 4 cisterns; do not know expense; never took the aqueduct; like Boston water better than soft water; Mr. Coolidge's filtered water I do not like; it has a smoky taste.

JAMES PAGE. I live in Temple street; am a bricklayer; have water abundant; too much; is pretty good, but some adjoining is better; supposed it is used more; rain water, only taken from part of my roof; estate on Gooch street supplied from a well above, which supplies 10 houses besides; Mrs. Jepson's water is much better than mine. On an estate in Hancock street water is abundant and good, just below Myrtle street; on an estate in Belknap street there is a well 90 feet deep; water abundant and good; on an estate in Morton place, well only 10 feet deep, and abundance of water and good; enough for 100 families; in Allen street, north of Hospital, they are well supplied as I am told; in Myrtle street good, but wells deep; land solid



as marble all the way down ; as good water as I ever drank was on the low lands of City. I should not pay tax for water if brought in ; do not know of any exigency ; the time may come in a century.

*Cross examined.* The water in some of the wells is not fit to drink ; some good ; there is carelessness in keeping wells ; prefer well water to brooks or ponds ; used for cooking ; it coats utensils ; generally furs them up, but not so bad as to stop use of kettles ; never saw it coated all over ; have seen in several places where kettles were coated so as to be stopped entirely ; I think at tavern near Market ; have known them to buy privileges in wells by Mill Pond ; wells there by Gooch street are very good. Elisha Woodward has a good well near the theatre. In Jenkins' house had no cistern ; family I suppose bought soft water. At School House, Derne street, water is good ; do not know depth, soft I believe, but never used it.

CHARLES SPRAGUE. I live in Washington street, 502, Ward 10, water very good from spring and cistern and abundance ; never have heard complaints. My father lived in neighborhood 50 or 60 years ; never out of water ; a year and a half ago removed from Boylston street ; lived there 12 years ; never out of water ; well 40 feet deep ; in some other parts had same good luck, and never out of water.

I have lived in Bedford street, Distil House square, Beach street, and 4 different houses on Washington street ; have moved 8 times. I do not know of any exigency for water ; have taken little or no pains to inquire ; have heard some noise. I live in the south part of the City, where perhaps it is less necessary ; the aqueduct passes our house, and should not take the trouble to take it in ; know but little of the City generally.

The water at my house is good enough, that which Providence has given us ; there is some humbuggery as to deleteriousness of water, that is talked of.

R. G. SHAW. Fifty years ago I lived at north end ; in Bridge street 5 or 6 years ; then in Union street ; then in



Federal street, by Milk street ; then in Bowdoin square ; now in Beacon street. At the north end water was hard and brackish ; in all the other places good ; I have soft water by cisterns, or collected in hogsheads. I do not know of any necessity for introducing water into the City ; I lately dug a well by the Custom House 70a80 feet, by boring ; an Artesian well. On Commercial wharf the well supplies many families ; it is inexhaustible. I would not now take water from the City ; have a cistern that holds a 100 hogsheads. In Bowdoin square, the cistern there built by Mr. Quincy, supplied by spring ; when I dug it there I found a living spring ; made our mortar from it. In Court street, dug a well, cost only \$15 for digging and stoning ; had an abundant supply ; good as can be ; at Parkman's old house it is of a very superior quality ; the wells not so good as before reservoir was dug.

*Cross examined.* I do not know as to reservoirs affecting wells ; the well on Commercial wharf is always surrounded by people ; I use well water from choice ; if soft water should be brought in I should not take it ; have one cistern and a filtering one ; they hold more than 100 hogsheads ; I believe my well is 80 feet deep ; but do not know ; I do not know of any well where people pay for it ; never heard of water affecting cooking utensils ; never lived in a place in town where there was not an abundance of pump water, all good ; in Richmond street not so good as others.

ISAAC DAVIS. I live in Hanover street, No. 20 ; I am a jeweller ; have water from a spring ; my well is 17 feet deep ; contains good and pure water ; such as my family are pleased with ; I own 3 houses in one block ; have a suction underneath my house. On an estate on Staniford street, never heard any complaint ; lived before on Washington street, No. 18 ; while there, had plenty of water and pure ; heard no complaint. On Eliot estate, good water ; at present I should not take of the City and pay water rent ; I keep store No. 28 Washington street ; do not know of any necessity for water ; should not take it as at present supplied ; have lived in Hanover street 16 years.

*Cross examined.* I use pump water ; give that the preference ; the aqueduct does not go to my house ; think I should prefer well water.

JOSEPH NOYES. I live 72 Salem street ; I am as well off as I wish for water ; I am not ashamed to let any body see it ; if every one would do as I have done, make a brick cistern, there would be no difficulty in obtaining water ; have 11 houses in Noyes place, and one well supplies the whole ; if neighbors on Mill pond would let us alone we should have water enough. It is 50 years in July, since I lived in Boston ; almost all the time at the north end ; do not know the least necessity for water, if they would take pains to make wells or clear them out ; I do not know if they could supply the whole from the ridge ; 16 families come to my well ; I carried suction about 80 feet.

*Cross examined.* As to expenses of well, I was very fortunate ; cost not more than \$150 ; is worth \$6,000 to my estates ; never had aqueduct ; do not like pond or river water ; there are too many things in it ; I do not know any neighbors that take it ; generally good wells there ; some bad ; Deacon Beals's well is bad by not pumping. I do not think I could let my houses for so much, by interest of \$6,000, or \$400 a year, without good water.

*Re-examined.* The three swelled front houses in Richmond street, corner of Salem street, have an inexhaustible supply ; I understood from Cook, the mechanic, that there were 25 suction from it. Philip Adams's well, opposite Baldwin place, contains excellent water ; I speak of it as it was in Dr. Baldwin's time.

ADIN HALL. I live in Lynde street, Ward 5 ; have plenty of water ; well for two houses ; have plenty for 10 families ; I think it good water and a large supply ; have soft water plenty, there has been a little difficulty by the descent ; the digging of one would affect the other wells ; when we go to equal depths all are supplied ; have charge of several estates ; 2 estates in Lynde street and 2 in Temple street ; one well would supply 100 families ; there is a very large old well, there is much difficulty in keeping it



clear ; it rises within ten feet of the top ; it is below Grace Church ; 2 doors below this, another well that supplies 2 families ; I live on estate in Spring street, (near Leverett street,) water good and plenty. On estate in Poplar street, well never dry. On an estate in Portland street, would supply 200 families, (2 wells.) In Lynde street cannot get over 2 feet of water, but cannot exhaust it where I live. In Tremont street, corner of Montgomery place, there is a well, and now a supply ; they dug near me, and mine became dry ; water has not returned again. Have had to do with estates in all parts of the City ; I am a Real Estate Broker ; have heard little complaint concerning water ; should not take City water if for nothing ; know of no necessity for water only on Mill pond ; those who own there are very strenuous to get water ; I am particularly acquainted at north end ; have sold and bought a great many estates there.

*Cross examined.* I advertise a great many houses that I never look at ; I seldom let any houses ; purchasers do and sometimes do not inquire about the water ; lived only in one house where I used the aqueduct, and did not like it ; like well water ; in summer the aqueduct is unpleasant and warm.

HENRY HALL. I live in Somerset street, Ward 4 ; I am well supplied with good water ; my well is 25 feet deep ; have 2 cisterns for rain water ; I lived in Bowdoin street 11 years, no water ; well ruined after we went there ; when first dug very good ; became offensive by drains breaking through, as we supposed. In Purchase street, very well supplied and good ; pump is at head of Tileston's wharf ; had to go for it ; also in John Brown's in Bowdoin street ; in Franklin place great abundance and good water ; suction in Brown's gave out ; not enough water in the well ; do not know how many families took from it. I lived in Purchase street 7 years ; built house in Bowdoin street ; did not occupy it myself ; water plenty but not good ; (opposite Bulfinch place.) Had no confidence in my well ; the water comes from upper surface ; while present supply lasts



should not take City water ; I fear that my well will either fail or deteriorate ; there is no better water now ; every body is delighted with it.

*Cross examined.* I dug a well in Bowdoin street ; think it cost about \$60 ; do not know of any becoming dry ; well in No. 53 became bad and was like bilge water ; examined it a great many times, but did not attempt to do any thing ; B. Parker owner of estate dug a well in street, and supplied with suction, but not constant. On Tileston's wharf, had to go 80 feet to well ; the water furred tea kettle ; hard water but pleasant to taste ; for soft water had aqueduct ; my family did not like it ; sometimes interrupted by frost, but not cause of complaint ; never drank rain water ; do not know how many families are supplied by well at Tileston's wharf ; most of the neighbors are.

WILLIAM LAWRENCE. I have lived in Bulfinch street, Ward 4, 19 years last December ; water very abundant ; as good perhaps as there is in town or country ; had charge of William Boardman's estates, viz : in Washington street, (No. 83) and in Devonshire street ; stores supplied by same well, by suction ; never any want of water that I know of ; the American House, which is a large establishment, has stable ; dug well 18 feet ; has stalls for over 100 horses ; I was fearful it would not be adequate ; deepened it about 10 feet ; the supply was still inadequate for 80 horses, (the constant number.) Commenced a new well ; dug about 40 feet, then bored about 40 more ; struck water, a spring that came with such violence, that one of the men had to stop it with his jacket ; 3 suction pumps were put in when the meeting house was burned ; no better water in the City. The American House was built in 1834 ; the same well supplies the house, stable and another house. Mr. Boardman has another estate opposite this, on Wing's lane, (Elm street,) I believe but one well there, but do not know. Stores in Merchants' row have plenty of water, but do not know the quality ; the water is used in packing provisions. On Mr. Boardman's estate, on Hancock street, good water and plenty. The stores I built in Market street, (Cornhill) I

do not know that I built a well. Should not be willing to pay for water, if brought in by the City. Where I live, I built a large cistern containing 40 or 50 hogsheads; this winter at the American House, they were out of rain water; first time since it was built; do not know of any exigency for water; but not so conversant with other parts of the City of my own knowledge; I do not know of any injury to health.

*Cross examined.* I never heard of water coating my tea-kettle; it was hard water; I was at a great expense in making a cistern, more than common. They do not take aqueduct at the American House; my impression is that the well at the American House must have cost \$200; have never used rain water for drinking; in spring it is a little discolored; I think this is owing to burning soft coal, but I do not know; the aqueduct does not go by us. My partner, Stone's, is very good; at fire in Hanover street, do not know of my own knowledge as to the quantity exhausted; the next morning the water was only 3 feet down.

Long Pond supplies Concord River. I own a dam across river; have now a lease for 10 years of the whole power at \$2,300; if water were taken from that pond should object; do not know personally as to quantity supplied to river.

CALEB CURTIS. I live in Chestnut, corner of Spruce street, Ward 6; lived there 12½ years, and never saw want of water; I have 2 wells on the estate; supply 3 houses; do not know any want of water; one or two persons there have dug wells deeper; do not know if I should take it from the City at water rent; bought water once when my cistern was cleaned; should not object to pay for aqueduct; rain water sometimes not so clear; for myself should do very well without it; no necessity for soft water except for washing sometimes.

*Cross examined.* I do not hear of any deficiency in wells; mine is not very hard; after 8 years found a coating on boiler in the first house; I have bought aqueduct water; should prefer that to cistern for washing.



JOHN WELLES. I have lived in Summer street, Ward 9, 20 years ; am 75 years of age ; very excellent well of water and great abundance. Horace Gray's pump log is in same well ; have soft water from aqueduct. I own several tenements in the City. In Front street I built about 60 houses ; they are partly supplied from a well, partly by aqueduct ; own perhaps 25 houses ; water excellent and abundant.

For 20 years lived in Franklin Place ; was supplied from a spring that supplied Barrel's fish-pond ; own other houses and have some interest in Mill Pond ; had a man on the ground who bored with success, I believe. I own an estate in Cornhill ; (Lincoln & Edmands) the water there is used for manufacturing purposes. As to the exigency, I wish to answer with candor. I prefer aqueduct water, and am the only one of my family that does. The water in well of State House yard is said to ebb and flow. I have heard of inconvenience experienced in this part of the City for want of water ; formerly there was not so abundant a supply as before ; if the City water should pass my estates have no necessity for it. I own an estate in Natick, one tenth of a mile from Charles river ; use pond water for washing ; never use river water for drinking.

*Cross examined.* I reside in the country 3 or 4 months in summer, in Dorchester and Natick ; the well in Dorchester is good ; used for washing ; for the 60 houses have only 2 wells ; they are ancient and in use ; first well is in the street. The aqueduct passes in Front street ; do not know how many houses take it ; should think most of them do ; generally in letting, people inquire as to water. Few persons want to drink the aqueduct, not one in fifty ; I was President of the Corporation ; had 5 or 600 dollars left and it was laid out in boring ; understood it was successful ; do not know as to other borings on Mill Pond.

HENRY GASSETT. I live in Summer street ; have a well, cistern, and aqueduct ; my well is abundant and of fine quality ; cistern hardly ever in use, because I have the aqueduct. I seldom clean out my cistern ; the neighborhood is in excellent condition as to water. In Otis place,



well good and abundant ; in Kneeland street had aqueduct alone ; in Newbury place have well and aqueduct ;—at times, in great rains I think, the well water was not so good.

I do not know of any necessity for water, because people will not pay for the aqueduct ; only 3 in Colnade row take it ; have a sufficiency of well water and good quality ; this is mere opinion. At stores in Kilby street, boys get some water, but not so good ; my well, 40 feet, dug in winter season.

*Cross examined.* I do not recollect the expenses ; wells in the neighborhood, not more than 20 or 25 feet deep ; I do not drink aqueduct water, nor my family ; my well water is the best I ever drank ; like it better than country water ; that is too soft. My ground of opinion as to the necessity was, their not taking the aqueduct ; that fact decided me, but not entirely. Aqueduct has not failed more than a fortnight in 15 years ; some of neighbors' failed last winter ; a leak was found.

BENJAMIN WILLIS. I lived on Fort Hill about 25 years ; water ample and of good quality ; when I shut up my house, people in Broad street come ; my well is 31 feet deep ; when absent they tell me they suck it ; I own 3 houses on Copp's Hill ; supply of water ample and very good ; 2 wells to the three houses ; wells 14 feet ; have had no complaints ; also three houses on Gridley street ; the well supplies three houses ; have a house on the top of Fort Hill ; supply of water very good, I believe ; 2 pumps in same well ; my pump not so long and failed ; have care of house in Hamilton court ; no well on the estates ; have right in another ; the pump on top of hill belongs to City, and is never dry ; fourth house in Gridley street, supplied by the well at Russia wharf ; have known them pump all day ; I should not take water for any tenements I own.

*Cross examined.* Water on Fort Hill very good ; have cisterns to all but one ; that is occupied by a great many tenants ; let it to two Irishmen ; do not know how many families ; they catch water in hhds. ; formerly the aqueduct

came in ; I did not see fit to continue the aqueduct on account of the expense ; they have never applied for it.

LEMUEL POPE. I live at corner of Bowdoin and Derne streets ; the well is good ; have 2 cisterns ; in the neighborhood wells are from 15 to 16 feet deep ; good but sometimes short ; do not know of any necessity for water ; would not pay a water rent ; I have lived in Myrtle street 3 years ; the supply of water very great and of good quality ; have also lived in Poplar street 12 months ; water good and abundant ; in Pinckney street, one year ; supply not good ; too many had a right to the pump ; the quality of water is good.

*Cross examined.* Wells sometimes short ; do not know for how long a time ; 5 or 6 families take from my well ; they use it for washing ; I have used it but put in soda a few times ; never heard of its coating the household utensils ; think there are not as many as 8 or 10 families supplied from Pinckney street.

THOMAS CURTIS. I live in Summer street ; my well water good ; have cistern ; they never fail ; in Purchase street, head of Pearl street, good water. Have lived 3 years in Suffolk place ; plenty of water, but not so good ; somewhat of a milky color ; have a filtering cistern ; additional cost about \$33 for the filtering part ; the rest was in the contract for my house ; would not take it from the City and pay water rent with my present supply.

*Cross examined.* Have not the aqueduct ; it passes by my door ; my cistern holds about 3,000 gallons ; there was a well on the estate when I bought it ; well 28 feet deep ; never fails ; about 14 feet of water ; said to be the best well in the neighborhood ; have drank some aqueduct water ; in Suffolk place never drank aqueduct water ; the well there was the poorest of any I had.



# EVIDENCE

FOR THE

## PETITION OF THE CITY OF BOSTON.

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*Friday, March 15, 1839.*

DR. GEORGE HAYWARD. *Question.* What is your opinion respecting the necessity of a supply of soft water, for the health and comfort of the inhabitants of the City.

*Answer.* I always regarded it as desirable to have a supply of soft water for the comfort and health of the inhabitants, the purer the better. In the water of this City, the foreign mixtures are more injurious than the articles that are chemically combined with it. It is difficult, if not impossible, in a place as compactly built as Boston, to prevent some of the fluids from the drains and vaults escaping into the wells. Personal cleanliness, which cannot be preserved without an abundant supply of soft water, I regard as a very efficient means of preserving health.

The well water in Boston generally contains a quantity of neutral salts ; it is not positively injurious to any great extent ; I have known instances where benefit has been derived to patients from using soft water ; it is important that the supply of soft water should be constant and certain ; as to the ratio of mortality last year, the deaths were 1 to 42 ; it was a healthy year ; population 80 to 81,000.

In Philadelphia infantile diseases prevail during the summer months. Pulmonary disease prevails there nearly, if not quite to the same extent as in Boston.

In New York, pulmonary diseases have been nearly 1-4 part of all the diseases of that City for 32 years past ; about the same proportion as in Europe.

London has become more healthy since 1800; the proportion of deaths used to be 1 to 28; now 1 to 42; I am not aware of the effect of water on children particularly; since the City has been better cleaned, the bowel complaint has been less frequent; do not know as to the amount of supply of soft water in London; but there is a copious supply; if water is unpalatable, or noxious, people would mix it.

*To a question by the Mayor.*

The effect of salts in the water of Boston is ordinarily none; but in a diseased state are perceptible in the stomach and digestive organs, but not in producing calculous diseases; there is so little lime; I referred to dyspepsia where there is a benefit from change. Soft water was introduced into the Massachusetts General Hospital with good effect to the patients, I believe; I speak of the general effect.

*Cross examined.* To dyspeptic patients, no doubt, the diet is important; there are, no doubt, some stomachs which cannot bear hard water. An abundant supply of water is essential to health and comfort; water suffers changes by boiling; it has an effect on cooking utensils; in a dense population impurities will get into the water. I recollect one striking case. When the cholera broke out in Eliot street, a drain broke into a well; all the families who used that water had the cholera. I believe that in this instance the impure water acted as an exciting cause of the disease, at a time when the whole population of the City was predisposed to cholera. I heard that a tan vat had been there; but families had lived there years and years before without any effect. I never knew any other case where an effect could be distinctly traced; the water was disagreeable; I tasted it; the families drank it and used it for cooking, &c.; it was unpleasant to the taste; I feel very certain a drain ran into it; hard water cannot be applied to cleanliness so well as soft; soap is decomposed in hard water; soft water I think would be conducive to health, in regard to personal cleanliness.

In Philadelphia, bowel complaints prevail beyond those



of the eastern Cities ; but this is among patients, (infants) who use but little water ; rain water, if abundant and pure, would be the best we could have.

As to the London tables, do not recollect the particular table, but the proportion is as before stated.

There is a large proportion of persons of my acquaintance who now drink aqueduct water. All soft water is unpalatable to persons unaccustomed to it. Calculous diseases usually arise from lime, of which there is a small proportion in the City water ; they are now very rare here ; fifty years ago, they were much more frequent. The calculous concretions at that period were probably uric acid, and the free use of vegetable acid in punch, which was so common then, might have had an influence in their production. It is certain that they have, in a great measure, disappeared among us since a change in that respect has taken place.

Change of water does not often affect health on changing from town to country ; people who go to the western country, which is a lime country, are affected with bowel complaints. In the Massachusetts General Hospital, we formerly used well and rain water ; now use aqueduct. In Philadelphia, the water is soft ; do not know of any City of equal size of Boston more healthy. I drink well water, because I get no other ; do not know of any ill effect from drinking well water. [The witness here referred to the diseases from the Tables of Boston for 1837.] I should not say there were any diseases peculiar to Boston and not to Philadelphia ; there are affections of the stomach here ; 10 or 15 years ago they were more prevalent than now ; some diseases prevail at certain times.

Boston is not so healthy as some parts of the country ; deaths in large cities over those of the country are caused in part by vice and excesses ; Boston is remarkably healthy for a City. Dr. Emerson of Philadelphia makes that City as healthy as any City. Consumptions are prevalent in Europe and here ; not more common in Boston than in the country towns on the sea coast ; they prevail where cold and moisture are combined, as in Scotland ; in very hot

and cold countries they are more rare. I never analysed any Boston water ; have merely read the analyses of chemists ; distilled water will wash ; I never used it for that ; have used it for medicinal purposes.

*Re-examined.* The aqueduct water was introduced into the Hospital on account of insufficiency of supply. The cases of gravel here are, for the most part, from the uric acid ; in London they are from lime ; most of our patients are therefore benefited by alkalies ; in other countries usually by acids. In Lexington, Kentucky, there have been more operations for stone than here, though that is a new place. I should take soft water, and pay rent for it ; at the hospital, water is collected in a reservoir ; in the cellar I believe.

DR. WALTER CHANNING. Soft water is of great importance ; very important as to diet and cleanliness. In the first place in the kitchen and cooking ; hard water will not cleanse ; it decomposes soap ; cisterns impure ; clothes rinsed in hard water will not be cleansed ; it is impossible to be cleanly with the present water of the City. I find the tea kettle coated with thick deposit ; when I see such a mass of material, I think the incrustation is sufficient to affect water used in food. It also requires more heat to boil water in vessels so incrustated, and is not economical. I think what is thus deposited in cooking, cannot answer any good purpose in the system, when the water containing it is used as a drink. In relation to health, I would observe that in the City house lots are small, and growing smaller ; people are brought nearer together ; drains are crossing your lands ; there are vaults and cess pools, and you will have an interchange of these materials. In my own house lately, there was a nuisance, which was very offensive ; it was said my neighbor's drain or privy was flowing in upon me ; I found his cess pool, drain and cistern broke into my cellar ; this exposed my family to disease, and my domestic accomodations, vegetables, &c. were injured ; my neighbor was obliged to buy water from Jamaica pond for some time, his cistern water being wholly



unfit for use, as his drain water found its way into the cistern. The City has allowed me to have a drain from my vault to a common sewer; my cistern water is often yellow and offensive. Two to three thousand years ago, the Romans had aqueducts; when I recollect what they did, I am surprised to find how little we have done towards this object. I do not know any particular fact or case as to the effect of water; I have no question, that the more free water is from foreign admixtures, the better for health.

The skin is one of the most extensive organs in the system; every part of the surface is constantly performing important functions; we may talk, eat, &c. as we may, but perfect health depends upon the skin; if this is dirty, it does not perform its functions. We have not been accustomed to know how to clean the skin, and a child comes to washing very reluctantly; they are so unaccustomed to it; I do not appear as an advocate for this plan of getting water into the city; hard water will rub the skin off, but will not cleanse it; animals will suffer for want of soft water; hard water takes off varnish from chaises, as I am told.

*Cross examined.* It is difficult to be particular in a question of this kind; I have spoken of salts, &c.; and said I knew from the vessels used that the water was impure. I do not know if calcareous disorders have increased or not; I am not a surgeon; I know of no cases of gravel, dysuria, &c., and believe they may be owing to foreign matter, injuring digestion; cannot bring to mind particular cases of stone; do not know as to the extent of operations for calcareous diseases; I do not know the effect of water on those diseases; surgical diseases of the bladder are not within my knowledge; have occasionally seen cases of gravel; do not know if increased or not; tables of diseases are published, and I contribute to them; have very little confidence in them myself; I suppose there is a connection between the disease of the urine and the water habitually used in the community; cider might impair the digestion; do not know a case of calcareous complaint traceable to any particular cause. I do not know the mode in

we do not know ; in animals I have no knowledge of the effects of water in the country and town respectively. I collected information some time ago for lectures on the ancient aqueducts, and was surprised at the extent and the supply, and the readiness to bear the expense of them ; they were made at a great expense.

The comparison of Boston with New York is in our favor ; the mortality is from  $\frac{1}{2}$  to  $\frac{1}{3}$  deaths under 5 years ; consumption is prevalent in Boston ; tubercles are the prominent cause ; do not know the cause of tubercles ; there is less consumption in the fever and ague countries ; I never knew of but two cases of fever and ague here which appeared to have been produced in this City ; think there is as much in the country as in Boston ; in consumption here, we often find calcareous deposits in patients ; cannot say if more here than in the country ; I do not know that the water has this effect ; hard water would produce bowel complaints.

*Re-examined.* Medical men act upon the principle in practice, that water has an effect on the constitution, and on diseases ; we are very particular always to direct apothecaries to use pure water ; in the families I visit, few have aqueducts ; the City is not well supplied with them.

DR. J. V. C. SMITH. I concur very fully with the other medical gentlemen who have testified, upon the general necessity of a copious supply of pure soft water.

*Cross examined.* I am inclined to give as much weight to the statements of Dr. Hayward as to the others ; perhaps because he spoke more slowly and was better heard ; yet I think the medical philosophy of Dr. Channing is true ; I am confined in practice to a hospital ; have no private practice ; the opinions of medical men are formed by interchange of information.

AUGUSTUS A. HAYES, (*Chemist.*) I have analysed wells in Boston ; one was an Artesian well at the Worcester rail road depot ; this result is from water taken 130 feet deep ; since that, the borings have been deepened, as I have understood ; I have made two or three comparative analyses,



which yellow fever is caused ; the operation of those causes [produces a paper containing his analysis] the water was brought to me by Nathan Hale, who stated to me where it came from ; the paper contains a true analysis of the wells, as stated to me.

*Cross examined.* I have analysed the waters of the stream in Roxbury, where the chemical works are ; at my own motion ; they contain a peculiar vegetable deposit.

*Monday, March 28, 1839.*

HENRY RICE. I live in Bulfinch place ; have a good supply of hard water ; for soft water I use rain ; have no aqueduct ; have occasionally purchased ; bought of man at north end ; have twice sent to my store for aqueduct water ; my well water is changed ; I was told it was soft ; think my well is about 26 feet deep ; my store is in Milk street. On an estate in Pearl place, have no soft water except from cistern ; on another estate in Sewall place, have no soft water except in cistern ; I have a sufficient supply of hard water but it is not fit for washing ; I believe much like other hard water ; never examined particularly ; use water from my own well because I have no other ; I would cheerfully pay 50 to 100 dollars per annum, to have soft water at my house ; think it would be for the interest of owners to take soft water ; but not to pay so much as I would ; on an estate in Essex street have no aqueduct, but have rain and well water ; have three estates in Washington street, above the Marlboro' Hotel ; believe they have only well water ; they are old buildings ; I think they have cisterns ; one has ; I have two houses on Vernon street, (Barton point) have only a well and cistern ; well is said to be good ; is is a part of the old Alms House land ; think they dug 12 to 15 feet deep.

*To Committee.* I would give 50 to 100 dollars a year for soft water ; it is one of the greatest luxuries ; I have put washing out and think I have paid \$50 a year ; a dollar a week ; I do not know of any complaint in the neighborhood for want of water ; I should take it at every estate, at the price it would cost.

*Question by Committee.* Do you know of any complaints for want of water?

*Answer.* I do; hard water forms a crust on the inside of the tea boiler; washing is done out of the family and continues so still; rain water is very bad from coal dust; it is discolored slightly; do not use it for shaving or bathing; very seldom for shaving; do not know but I might use it once or twice in a year.

*Cross examined.* My cistern holds about 20 hhds.; has been out this and last year also; my family consists of 10 to 20 persons; have suffered from want of quantity in former seasons; the complaints referred to are for want of hard and soft water. On Pearl place, dug a new well last October; supposed to be sufficient; cost about \$60; 22 feet deep; it was dug by Higgins; the well has given out; about a fortnight ago I was so informed; I have done nothing yet; I am considering what to do; neighbor James Boyd's well is 80 feet deep; I enjoy good health; my family do not; I have no other water, and it is useless to complain of what we cannot remedy. I lived once in Mt. Vernon street, (next to Judge Shaw's) I was plagued for want of water; my well was 90 feet deep; my domestics could not pump it; have the aqueduct at our store; good as we want for our purposes; if the aqueduct passed my house would give \$50 a year; I do not know why it is not carried into Sewall place; I never applied for aqueduct to my house, because I knew it was useless on account of the height; I never applied for aqueduct at Sewall place nor in Washington street; have rented on long lease in Washington street; I think the aqueduct would be cheaper than a well; if I should build a block of houses I should take it; a well 80 feet deep would cost \$250.

DR. WARREN. I have been in the habit of using rain water for domestic purposes, from 12 to 15 years; I was led to do this by facts that took place early in my practice.

The first cases which attracted my attention to this subject, were those called the *Cholic of Infants*. This disorder attacks young infants with periodical, and in many cases



daily pains. It lasts a few weeks and disappears as the child gains strength. In a case of this kind, I noticed that when the mother went into the country with the child for a few days, the child was free from the pains the day after its arrival in the country, and continued so till it returned to town. I attributed this to the change of water, and was led by it to prescribe pure water to mothers and nurses, when the children were severely affected with these pains. Some time after these occurrences, a medical friend informed me, that he had been affected for some time with the dyspepsia and diarrhœa, and could only get relief by employing pure soft water. Another circumstance which awakened my attention to this matter, was my meeting with the works of Dr. Lamb on distilled water. He thought that impure water disordered the digestive organs ; and that it served, as he said, for the vehicle of the poison of cancer. Without giving into Dr. Lamb's views altogether, I attached some importance to them ; and when one of my family was attacked with a formidable dyspepsia, for which all remedies were tried in vain, and among them a voyage to Havana, I at last thought of the use of rain water. From the time we began to use it he recovered rapidly, and we have continued to use it from that time to this, for drink and for all culinary purposes, and we have always found it to answer much better for the cookery of vegetables than the spring water of this City. These facts have led me to recommend rain and aqueduct water to a considerable number of persons ; and so important do I consider the use of pure water, that it is my intention to put up works for the purpose of supplying it freely to every part of my house.

Nearly all the towns in Europe have a supply of soft water ; they have not pumps like ours, but pipes, through which the water is conveyed to every part of the house, in an inexhaustible stream. It is not unusual for citizens to leave their pipes open and flowing through the night to cleanse the drains and water closets.

In Italy nearly all the cities are supplied with soft water ; this is a general fact ; they have a supply by pipes.

In Rome there are three aqueducts, and the City is watered in a splendid way ; one canal brings hard water for the fountains only ; not used for drinking ; I do not know of Artesian wells there. In London the mortality is 1 to 35 ; it has been changed from 1 to 20 or 25, to 1 in 35 ; Boston is I believe 1 in 40. In Philadelphia it was stated to me, that since the introduction of soft water, there had been no great epidemic ; and it is well known they have suffered less by cholera than most of our great cities ; a statement presented to me of deaths, shows 1 in 20 or 25. In London, at Somerset House, I saw tables of deaths, &c. kept, which will be valuable ; the ill effects of water are principally by extraneous matters, animal and vegetable ; strangers are affected with purging in Paris ; I do not mean that mineral impregnation has no influence ; there are calcareous impregnations. In the Western States of this country, where there is a calcareous soil, the water is distinctly purgative and poisonous to strangers ; have experienced it myself ; I was attacked by fever and then diarrhœa ; we know that that water is strongly impregnated with lime ; this and all saline matter must have some influence on the human body ; the upper springs are most likely to be affected by animal and vegetable impregnations ; lower springs by mineral ; more children than adults are affected by water.

*Cross examined.* I have been in practice since 1802 ; the predominant disease with us is consumption ; I think about 1-5 ; I do not recollect any more peculiar to us than Philadelphia ; consider chance of life here considerably above that of Philadelphia ; I think here it was 1 in 30, when there it was 1 in 20 ; bowel complaints there are frequent ; generally affect children the most ; I cannot tell whether all physicians ask or direct as to water ; I do not always ; but generally and habitually I direct distilled, or aqueduct, or rain water for all medical purposes ; water and air operate much alike on health ; but we cannot observe exactly the manner and degree in which they operate ; water and air stand upon much the same footing in medical treatment ;



I wish to be understood, that if water operates, it does slowly ; Boston is very healthy ; but think, if supplied with good pure water we should enjoy better health even than we do now ; in my diet I use coarse wheat bread, vulgarly called dyspepsia bread ; I think it best ; I judge of water as of medicine ; if a patient gets well after using a particular medicine, we say the medicine cured him ; cannot recollect any other cases than those I have mentioned ; it is just as certain in my opinion, that hard water has an injurious effect, as that bad air has ; and it is generally allowed that epidemic diseases are dependent on the atmospheric condition ; distilled water is not so wholesome for want of atmospheric air. It is a curious fact, that this part of the country is very free from calculous complaints, that is stone and gravel. In my experience I do not recollect of more than one or two cases of stone originating in Boston ; Dr. Nelson, of Canada, told me he had operated on four times the number I had ; also Dr. Drake, in Ohio, informed me to the same effect ; I have attributed the great prevalence of this disorder on the St. Lawrence, Ohio, &c., to the beds of lime stone, which form a large part of their soil ; here there is but little in the Commonwealth ; some cases in my practice from the State of Maine, were from a limestone country. I have cured gravel by use of alkali ; sometimes use alkalies, sometimes acids. My family is much the same as others in health ; we use considerable exercise and eat coarse bread, as before stated ; diarrhœa is common in limestone countries ; I do not know that there is a greater change of air from town to country than from country to town ; but it is certain that patients affected with disordered bowels are cured by going into the country. These cases I attribute to change of water and change of air ; I do not imagine there is any great difference ; there is evidence here that people live longer in the country than in towns ; the documents in support of these opinions are imperfect in this country ; but in Europe it is perfectly established ; in England there is a difference of  $\frac{1}{3}$  of mortality between town and country. The difference in eating, that is the want of

good food, is in part the cause, but not the whole ; the proportion of fluid which goes off from the pores is exactly ascertained, but I do not recollect it. Digging canals is decidedly unfavorable to the longevity of laborers ; I do not think I ever turned my attention to the effects of water before the case of my own family ; my father never instructed me about it ; the water after I moved to my present residence grew worse. If I sent a number of children, affected with disordered bowels, out of town, and they all grew better, I should think it afforded strong presumption of the good effects of the practice. As to the health of children in Rome, I did not particularly inquire ; but I know the mortality was very great, 1 in 28 ; the mortality of children in the country here, is not ascertained. The tables of mortality in Europe answer for insurances here ; the English are unwilling to insure lives in this country ; they ask a double premium ; I take it their opinion is founded on the supposed unhealthiness of the country. The aqueduct water from Jamaica pond, is as good as any that can be brought in.

As the question is asked me, I reply that I think I am more particular than most persons, as to what I eat and drink ; I do not believe Dr. Lamb was right in his opinion, that water was the vehicle of the poison of cancer. Dyspepsia I think is diminishing here ; a great many people are getting into the use of aqueduct and rain water ; I recollect in 1812, there was a rain water doctor here ; he was encouraged owing to the common disposition to quackery.

*Re-examined.* I believe the water in Boston is diminishing ; do not know any fact to prove its general deterioration as to quality ; people complain more than formerly of want of it ; particularly on Mt. Vernon. A friend of mine in that quarter has found it necessary to have a rain water establishment. In Philadelphia fever and ague was very prevalent, before the introduction of the Schuylkill water ; since, it has diminished or quite disappeared. The increase of population will I think deteriorate the water ; for this increase must increase the quantity of impurities ; if



people had the means of using water freely, they would keep themselves more clean ; I cannot answer as to effects produced in warm climates, by the use of water ; it must be salutary ; in England the climate is much the same as our own. In London, water is used in all houses I have been into, to an extent we have no idea of ; the life of man has been diminished by excesses ; the Irish lower class of the country do not live long ; the use of ardent spirits affects their health ; other laborers also short lived ; the Germans perhaps not so much ; they have higher employments than the Irish. The higher classes in Europe, though in some respects luxurious, live long ; this is remarkable, and must be accounted for by the fact that they are generally independent and therefore cheerful. They also take great pains about the preservation of health by exercise. It is difficult to recollect particular facts in practice unless noted. For instance, it is well known that calomel purges ; if you should ask me what proof I have of it, I should say my general experience of its use. But if you then call on me to say in what particular case I know it to have had that effect, perhaps I could not recollect one particular case. This difficulty applies to the use of hard water ; for though we believe and even know it to be less healthy than pure water, it might be difficult to adduce one single instance of its ill effects. In the range of tenements from School or Beacon to Howard street, there were several old men, Mr. Greene, Mr. Hubbard, Mr. Babcock, and others ; but I think if you get pure water, there will be a greater number of long lived persons than there have been. River water has the advantage of atmospheric air, over lake water, but the latter is more pure.

*Thursday, March 21, 1839.*

DR. JACKSON. My impression is that pure water is more healthy than impure water ; this is an old opinion. In attending to the influence of water in this City, I do not know any evidence of its deleterious effects internally ; I mean there are no certain evidences of any deleterious

effects on an extensive scale. There are individual instances tending to show, that pure water is more salutary than well water. I ought however to state that this circumstance is no evidence that it is not producing an effect at all times ; there are many things operating injuriously, whose effects are slow and not observable.

The well water is not agreeable to the taste ; and people are led to mix something with the water ; and this begins often early in life ; the consequences are obvious to every man ; I must say that this has always appeared to me to be the worst effect of our water, as regards its internal use. I know instances of people so mixing it. As a physician, I inquire of patients as to what they drink, their habits of life, &c. I do not know that I can state any thing more positively than I have done. I recollect an instance of a coachman in this town, who applied to me under dyspepsia ; he was severely affected ; I found him to be a respectable, discreet man, being in a family where he was not confined to severe labor, and paid every attention to his diet ; he twice left the City by my advice for some months ; recovered and returned again ; I could discover nothing unless in the water ; he could not live in town ; went into the country, recovered fine health, and for years afterwards told me he had become perfectly well, and so much changed I did not know him. I have used aqueduct water till within 18 months ; pure water is vastly more agreeable ; I find it so in the country. I use well water in the City and some of my family use it. Several years since, while living in Summer street, I used first well water, afterwards aqueduct water ; was prejudiced against it at first, but very soon left off well water. I have a cistern for rain water at my present house, but the water is disagreeable with coal dust (or soot) so strong, I could not use it. I tried it and endeavored to persuade my family to drink it but they would not. I do not know the expense of the cistern.

As to the external uses, I am not aware that the difference of water is so important ; the great difficulty is we do not get enough of it with sufficient ease. One consequence



of deficiency of water I can state, but not without some explanation. In this City one cause of less health is, the being overworked, not so much from great efforts, as working longer ; people in the City walk quicker, in the country, slower ; this applies to all kinds of effort. In the City the motions are quicker than in the country. In most houses there are persons who seldom go abroad, being engaged in domestic labor. The wife, in some cases, does the labor ; in others, the domestics ; washing and scouring are very important items in this labor of the City ; and a facility for getting water is important ; no persons are more apt to overwork themselves than mothers, &c. I have seen the evils of this overwork within doors ; many suffer from it ; among others, my friends, the lawyers, &c. ; I have frequently advised them ; but a woman who works with her hands, has no alternative ; she cannot get rid of the labor. Among the poor, I always inquired as to causes of ill health. In no set of people is it more important to obviate the causes of ill health, to get more work out of doors and less within. Thus I have been led to the discovery in many cases, that their labor was greatly increased from want of a sufficiency of good water. I cannot call to mind any particular cases now ; I do not lay up the instances which are the evidence of it ; I do not recollect the effect in the Hospital ; I do not recollect any thing very definite as to other cities ; the health of London has been constantly improving.

*Cross examined.* As all or nearly all use the hard water for drink in some way, there is not an opportunity of comparing the effects of the hard and soft water. As to solids we can compare the effect of different articles, because we have an option which to use.

I frequently have asked about the water that patients used ; a large proportion drink other things. When a question arises, I ask whether they drink the aqueduct water, principally in cases of complaints of the alimentary canal ; and where diet comes under discussion I commonly ask ; a distaste of water often leads to this. I know generally where the aqueduct runs, as in Washington street,

not far up Winter street ; I believe in some part of Tremont street ; I do not direct it to be obtained ; there is a difficulty in getting it ; I cannot mark any distinction in the health of the City, where aqueduct is taken, and where not. I cannot say how many people take the aqueduct ; should not think a large proportion of people dislike it ; generally, in first using it, my impression is, people do not like it. I do not think we should have to go through any degree of intemperance before we get used to the aqueduct ; we get fond of soft water sooner than in hard ; my experience in this case is like that in all common affairs of life.

I should say from my experience, that one half the young men who mix something with water, begin on account of the water not being good. I do not know as to the practice in the country ; am very sure it is a cause ; it may be an excuse ; an apology for the practice of mixing. My opinion is that intemperance often begins with mixing something with the water ; when people change from hard to aqueduct water, and the reverse, it is generally disagreeable ; the same in changing from country to city, and the contrary, generally.

As to labor, I did not distinguish between the use of aqueduct and hard water ; in this I wish to be understood. In tracing back disease, I find one cause is, the quality of the water used by laboring people. I cannot bring facts enough to prove the effects ; but we may judge from this ; these people say to me, it is well I have the aqueduct, or on the contrary, I am badly off for water. I have no question but the labor is lessened, in parts of the City where the aqueduct is used ; in some cases they have said to me they had been obliged to leave such a house for want of water. As an illustration I ask a woman in respect to labor ; endeavor to see if it cannot be diminished ; I ask her if she has to lift the water, &c. ; she will say, if I had the aqueduct I should do better. The health of Boston is better than that of New York or Philadelphia. Boston is among the most healthy cities ; my impression is, they have gone beyond us in some cities in England in guarding against causes of dis-



ease, but I may be wrong. Of disorders causing death, consumption causes one fifth ; among those not causing death are many disorders of the alimentary canal. Of calculus there is very little. I have known only one case of stone in the bladder originating in this City ; it is extremely common in the gall bladder. One family moved to Atkinson street, and during two years, they had the jaundice ; in five of them, which was unusual, it proceeded from calculus in the gall bladder ; I advised them to remove ; they did ; the mother had returns occasionally, but the children recovered. Longevity is not very common here ; I only know of one person 100 years old. So many causes are operating here to produce ill health, that it is difficult to trace disease to any one cause in particular. Filtering is only a mechanical process, not chemical ; the water is probably deprived of some of its atmospheric air, but not materially *altered* in its composition.

*Re-examined.* In very many cases it is difficult to trace ill health to a particular cause ; if any one case is frequently brought before me where a particular cause exists, I attribute it to that. I have advised patients to drink aqueduct water in preference to any other ; more in reference to the distaste they have for the well water, but still from a belief that it is better for the health. My knowledge of cholera is not so much from my own observation as from the reports of my medical friends ; it is certain it appeared in the filthy parts of the town, mostly, as in Eliot street, &c. The first case occurred in an old house, formerly Dr. Rand's, in Atkinson street, the play-ground of the Asylum for the Blind ; it was left in a state of decay ; as far as I have known, the cholera generally happened in filthy parts of cities in Europe.

In Boston and Philadelphia the cholera is less than in New York. In Eliot street there were striking facts connected with the water. I do not know of any difference between children and adults, except that children have frequently sandy or gravelly complaints. I do not know that it is traceable to water ; my impression is, it has been.

DR. H. I. BOWDITCH. I have been in practice 4 years last autumn ; I concur with the other gentlemen, that I do not distinctly trace disease of the internal organs to Boston water. I have observed a want of water among patients who fell under my charge as dispensary physician ; first on Fort Hill, about the back of the centre of Broad street for one year, and in Eliot and Warren streets. I was very much struck with the want of water in Broad street ; the houses I mean, are back of Broad street, by Burgess alley ; also in Purchase street, as I thought from appearances ; my attention was particularly called to the subject while I was dispensary physician. I had the Fort Hill district, which embraced houses back of Broad street ; within a week I have visited three places ; two I had visited as dispensary physician, one as physician to the poor. I have a memorandum of facts.

1. I visited one house at the corner of Eliot and Warren streets ; it had six families ; in one entry all except one are Irish ; and in this entry of the house 2 of these families were obliged to give up their business (washing) for want of water as they said. On the premises there is only one hogshead for all of them ; the pump is out of order ; no aqueduct ; two of them said they had to go to Church street, or to borrow aqueduct of their neighbors ; they went to neighbors for well water.

2. *Peck Lane*, called the old college ; there are, at least, 100 inmates ; I counted 107 ; they stated the numbers ; I went into each room ; there are 24 rooms ; in the rooms I saw almost invariably 2 or 3 people. Of water I can speak from personal experience ; twice I have attempted to draw water from the aqueduct ; have taken out stop-cocks, but found none when I called. I went first in the afternoon, and to-day in the forenoon ; saw no well on the premises ; they get enough from neighbors.

3. *Back of Broad street*. While dispensary physician, I heard a loud noise proceed from a number of Irish women ; saw them disputing, and appeared to be striving to get to the pump. I cannot now state any one



fact; but my dispensary practice forced upon me daily occasion of observing, that there was the want of some place where they could free themselves easily from the impurities upon them, by a copious supply of soft water; I mean, to wash themselves. The importance of public baths was more impressed upon me then, than since.

*Cross examined.* I believe the house in Warren street has as good a reputation as others; Peck lane, much the same; Broad street, less intellect; morals much the same; I believe that class have not a tendency to cleanliness; I would have it in the power of the dispensary physician to find means of cleansing children, &c. when sick. I satisfied myself, I cannot get a sufficient quantity of soft water for medical purposes among the poor patients; I mean particularly in bathing.

JOSEPH TILDEN. I live in Charles street, Ward 6; the pump water in Charles street, I used to call very good; my neighbors call it so now; my tea kettle used to get furred up, so that about every two years I had to take it to the copper smiths to have it cleared out; I had a good rain water cistern; when we began to burn coal, it became yellow and turned the clothes; I gave up use of cistern and now take aqueduct; my cistern holds 9 hhds.; I had the aqueduct brought into cistern with a ball and stop cock; now have a supply; I do not use the pump at all; the water looked like iron rust; a neighbor had half of well, but now takes the aqueduct; I do not know of any complaints among the neighbors for want of water; most of them take the aqueduct; I have been called upon to deepen 3 wells; one at Ticknor's house in Park street; do not know the depth; two in Leverett street; do not know who occupies the estate; the owner lives in New York; in Tremont place I built 6 houses; the wells of different depths, 25 to 30 feet; in the corner well, plenty of water, and good when dug; the other two were bad; this was in 1829. This summer H. Andrews built a cistern in one of that block; I was called to go and see about taking up the well, which is the second from the burying ground (Mr. Parker's) he was

willing to dig ; his neighbor was not ; this was the last summer ; I built a block in Union street, about 1826 ; we had no water when we first began, (where the fire was) I dug down and boxed out and then bored ; I could not get good water ; it was brackish ; the estate was owned by Wm. Eliot ; he spent about \$1,500, as Mr. E. I think said ; I saw the bills to about that amount ; last year took up Dr. Warren's well, deepened it 5 feet ; had very good water ; do not know the expense ; for two years past it has been common to be called upon to deepen wells ; at the Old South, there are two wells of good water, 30 feet deep, I think ; I do not know the expense ; at Brooks's buildings, on Washington street, the water is good and plenty ; wells not more than 18 or 20 feet deep ; there are two wells, one in the street by Suffolk place ; part of the houses take by suction from them ; I never dug a well in Broad street.

*Cross examined.* The aqueduct in Charles street generally taken ; Brown's well there is affected by tides ; I tried to deepen it, but the gravel run in ; at high tides the water comes into my cellar ; my cellar is 5 feet below the street ; I do not know how many take the aqueduct ; at the houses above, on Cedar street, they say some of the wells are bad ; Mr. Ingraham complained of his ; I think my wife enjoys better health than before we had the aqueduct ; when I was an apprentice, I used to mix spirit with water, when it was so bad I could not drink it without ; my own family always lived in Charles street ; I do not mix any thing with water now ; there was a spring formerly very good, between Pinckney and Mt. Vernon streets ; I have walked over the hill to Belknap street about 38 years ago ; there is now a house where the spring was, built by Mr. Dunbar ; when we dug his cellar it drained some of the wells round ; I saw one or two ; no spring runs out from there now ; two wells were deepened ; I do not know if there is water now or not ; since I have used aqueduct, I can find no other good ; I think Boston water is called good ; I should be willing to pay \$100 a year to have a supply of water, so I could draw it in my house.



*Friday, P. M., March 22.*

DR. JOHN WARE. I think I recollect conversing with S. Wilkinson, but will not swear to it; think it was two years ago this spring; I have no recollection of saying, and cannot say whether I signed the petition or not; I cannot recollect the particulars of the conversation; I never said I took no particular interest in it, or had signed the petition merely on its being presented; because it was not true that I took no particular interest in it; I had moved the resolution in the Medical Association to vote the petition, and moved that it should be signed by all the members; my opinion then and now is that the introduction of pure water is important to the health of the City.

*Cross examined.* I give this as a professional opinion; I cannot state any particular cases. Boston water I have not found has diminished the health or life. I have no particular cases where death or disease has been produced by the water. The City is a very healthy one; more so than the four or five principal cities in the United States. I cannot say the mortality is not a fourth, but I think it less than that. There are many things besides the water, in the condition of the City, that tend to diminish mortality. This is affected by cleanliness and character of the country geologically; some countries are hilly, some swampy; here it is free from malaria. In New York and Philadelphia there is malaria, and in the surrounding country there are intermittent fevers; a small proportion of diseases arises from malaria. I know instances of intermittents where the patients have come here from New York; intermittents do not make a great difference in the mortality of New York; where they prevail, it is more sickly; the amount of sickness is greater, than where they do not; my general belief is that pure water is conducive to health. I cannot state any particular facts.

I do not perceive any difference in the houses where the aqueduct is taken or not. I have few patients that take it. I almost always use well water when I cannot get rain water; but I cannot get this filtered sufficiently. I think my

medical brethren concur in opinion as to Boston water's effect on health ; but they also concur in the opinion, that we have not a sufficient supply of soft water for all purposes for which water is used, or ought to be used.

In regard to deaths, pulmonary diseases are the prevalent ones ; I think one fourth I attend are cases of disease of the lungs. The physicians, who were my predecessors, have not left any memorial or instructions, tending to show that Boston water produces disease. I think among my acquaintance aqueduct water is preferred ; those who use it say they prefer it to pump water ; I think there is a flatness about it that is not liked ; the stone or gravel is not common here. My well water is good for Boston water, and sufficient ; I had to lower it ; do not know how deep ; for many months there was a difficulty in getting a supply ; when our water was deficient, a number of wells in the neighborhood failed. I do not know how it is now.

EBENEZER A. LESTER. I made a return of the wells in the City, September 2, 1834. In Bulfinch street and place the whole number was 15 ; those used for drinking, 13 ; when Col. Baldwin employed me to get returns, he directed me to get the number of wells ; those that were hard, drinkable, &c. as in my list. I went to each house, where I could ascertain there were wells on the place, and where houses were not closed ; I think I commenced in June, and continued it for some weeks ; I went to all the houses, and endeavored to find by inquiry of occupants as to the water ; this list, [produced by the witness] is I believe a true return ; I do not know that I made any returns without those previous enquiries ; I tasted the water sometimes, when thirsty, and when good ; I had last fall the original document of names, &c., but destroyed it as of no value ; I do not know but think it probable that I said, (because Mr. May now says so, as I understand) that I supposed I must report his well as the rest, bad ; I do not know I said this ; but if he says so, I probably did ; but I should have reported according as Mr. May told me it was ; I do not recollect his asking me



to go in and taste it ; I do not recollect seeing him at all ; whole number of wells in the City was 2767.

*Cross examined.* I went in and generally saw the occupants ; if not the gentleman, then the lady of the house ; in some instances I took it from domestics ; I cannot say I saw half, or how many heads of families ; I believe I found one instance, if not more, where two families took from the same well, and one called it good, the other bad ; in every instance where used for drinking at all, I put it down in the column of drinkable ; in one instance a father of a family said water was good, and his daughters said it was bad ; I put it down as the father said. The wells were as follows.

In Milk street, drinkable,	-	-	-	-	16
bad,	-	-	-	-	17
In Bath street, drinkable,	-	-	-	-	2
not drinkable,	-	-	-	-	1
In Chambers street, drinkable,	-	-	-	-	31
bad,	-	-	-	-	3
failed,	-	-	-	-	7
In Water street, drinkable,	-	-	-	-	3
not drinkable,	-	-	-	-	3
In Hancock street, drinkable,	-	-	-	-	26
bad,	-	-	-	-	1
In Green street, drinkable,	-	-	-	-	17
bad, or not drinkable,	-	-	-	-	4
In Congress street, drinkable,	-	-	-	-	5
not drinkable,	-	-	-	-	3
In Bulfinch street and place, drinkable,	-	-	-	-	13
bad,	-	-	-	-	2

I took my information from the families ; I generally went into the house ; made it a matter of business, and a pretty tedious one it was.

GEORGE HALLETT. I live in Green street ; I have a plentiful supply of well water ; have cistern containing 25 hhds. ; I use well water for drinking ; in the neighborhood there is a pretty general supply ; I have a house corner of Montgomery place ; it is short of water ; often complaining there for want of soft and hard water. For 14 years I re-

sided in Portland street, where there is a plentiful supply of hard water ; as good as Boston water in general, I think ; I had something to do with Artesian wells ; one on Commercial wharf and two on Commercial street ; on the wharf there is a pretty fair supply and good water, believe it is soft ; others are pretty nearly a failure, both ; one is about given up, and the other we are obliged to lock up ; sunk these wells because there was no water there ; there is on Ellis estate, (Ann street and Commercial) one well quite brackish ; I should be willing to pay pretty liberally for a plentiful supply of soft water ; I live out of town 7 or 8 months, where we have a supply ; but should be still willing to pay ; Artesian wells cost about \$500 ; my cistern cost about \$75 ; have no filtering apparatus.

*Cross examined.* Dr. Wing's cistern, (Montgomery place) is small ; I usually move out of the City in April ; have well water for house out of town ; use same for washing as for drinking ; I live  $\frac{1}{4}$  of a mile from Jamaica pond, and no doubt our well is from the same source ; it is of the same height ; I have 3 wells ; I have lived out of town 7 years ; as long as I have lived in Boston, (39 years) I have been of opinion the Boston water was not suitable for drinking ; my health was not so good as since I lived out of town ; I do not know as to the effect of water ; I am a great drinker of water.

JARVIS BRAMAN. I have baths under my care, in Tremont House, and at the bottom of Chestnut street. At Tremont House it is my regular business two or three times a day ; have no supply of soft water ; when the house was built they dug two large reservoirs ; one on Tremont place, and one in Tremont House area ; some part of the time both are out ; last year, out about 1st June, and continued so pretty much through the summer ; I have not more than half enough for baths ; it is hard water ; the reservoir in the court was built with a view to the baths ; but they cut me off because they had not enough for the house ; several reservoirs under roof ; the reservoirs in the place supplied from roofs of houses ; the reservoirs, Mr. Tilden told me,



cost \$1,000 for the two ; I would give \$300 a year for a supply of soft water ; I lived in Charles street four years, (No. 100, 5th door from Chestnut street) had well water ; very bad ; had the aqueduct brought into my house ; I moved to bottom of Chestnut street and had a bathing establishment ; offered to lay logs from Charles street ; but the aqueduct company, (Mr. Dexter) told me that they could not supply me as they had not enough for their customers ; I understood they supplied steam engines, but said they should be obliged to cut them off ; for bathing I would give \$300 a year ; I built a reservoir, &c. expecting to get soft water ; it cost 5 to 600 dollars ; in my neighborhood people complain for want of water ; Brown & Seaver's water is brackish ; do not recollect any others ; I sometimes use it myself ; but sometimes it is so bad, say for 2 or 3 weeks, I cannot use it ; they do not use it for cooking at such times.

*Cross examined.* I have lived in City, off and on, about 15 years ; came from New Orleans ; was born in Holden, Worcester county. The Tremont cisterns were put down with cement ; heard Mr. Tilden say he cleaned out one, and there was no defect in it ; my well at Tremont House is 83 feet deep ; I do not know how much water I should use ; I did not deepen well at Tremont House.

*Re-examined.* I had charge of a house in Charles street, next to Alker's stable ; water is bad and they do not use it ; they have the aqueduct.

NATHAN HALE. I was appointed one of the Commissioners of the City after the examination began, and am not conversant with all the proceedings ; I think I entered on my duties in June or July, 1837 ; I procured the water for Mr. Hayes ; had previously had analysis of water out of town ; and concluded to have one of a well in the City, (Mr. John P. Thorndike's house, built by him ; ) said to be of great purity ; it was remarkably transparent and recommended to us highly by Mr. T., and selected by us as the best specimen within our knowledge of Boston well water ; sent some demijohns of it to Mr. Hayes, by a man in our

employ ; three different kinds, marked A, B, C, on label, tied to the neck of demijohn ; I made an entry of the description of water, in a book, (now in Mr. Baldwin's hands) when they were marked and sent away ; the entry is in my hand writing ; I live in Franklin street, No. 5 ; have cistern water, but it is rarely used ; the well water is indifferent, but sometimes use it ; it is brackish and not palatable at all ; I only use it when the aqueduct fails ; the aqueduct failed this winter occasionally, for the last two months ; perhaps not more than ten days.

*Monday, March 25, 1839.*

The Committee informed the parties, that the examination of witnesses must now stop, for want of time. The proceedings were then closed with an examination, by chemical tests, of various samples of well water, and aqueduct and pond water, which had been produced before the Committee. This examination of the different waters was made by Mr. Hayes, the witness who had formerly made the analysis of the Boston well water referred to in Mr. Hale's testimony, (p. 61,) and the experiments and results of the present examination were of a highly interesting and striking character, tending to show the presence of foreign ingredients in many samples of water described by the witnesses as good.



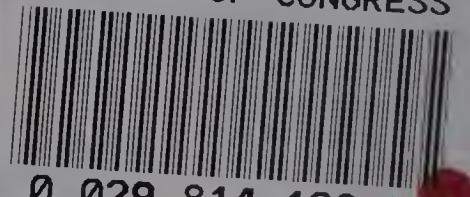








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